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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,598	02/14/2002	Hiroshi Yamaki	0649-0835P	9710

2292 7590 06/28/2004

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EXAMINER

FONTAINE, MONICA A

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/049,598	YAMAKI, HIROSHI	
	Examiner	Art Unit	
	Monica A Fontaine	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

This office action is in response to the Amendment filed 8 April 2004.

The previous rejections have been withdrawn as necessitated by amendment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colton et al. (WO 89/00918), in view of Nishikawa et al. (U.S. Patent 5,997,781). Regarding Claim 1, Colton et al., hereafter "Colton," show that it is known to carry out a method of injection molding of a thermoplastic resin (Abstract) comprising filling a mold cavity with a molten resin that preliminarily contains carbon dioxide dissolved therein to lower its melt viscosity (Page 4, lines 20-24; The limitation of "lower[ing] its melt viscosity" is being interpreted as an inherent consequence of dissolving carbon dioxide into a molten resin.), while allowing the molten resin to foam at the flow front thereof (Page 4, lines 24-30), and then pressurizing the resin in the mold cavity to at least a pressure at which the resin does not foam (Page 5, lines 2-4). Colton does not show a specific amount of carbon dioxide dissolved in the molten resin. Nishikawa et al., hereafter "Nishikawa," show that it is known to carry out a process wherein there is preliminarily at least 0.2 weight percent of carbon dioxide dissolved in a molten resin (Column 6, lines 1-3).

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Nishikawa and Colton are combinable because they are concerned with a similar technical field, namely, that of molding methods which use a molten resin containing carbon dioxide as a molding material. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Nishikawa's specific amount of carbon dioxide in Colton's molten resin in order to achieve the desired amount of initial foaming.

Regarding Claim 2, Colton shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show operating his system at a specific value relative to the pressure of the supplied carbon dioxide and the amount dissolved into the molten resin.

Nishikawa shows that it is known to carry out a method wherein a thermoplastic resin having an amount of carbon dioxide dissolved in its molten resin at the molding temperature, when carbon dioxide is supplied from a plasticating cylinder of an injection molding machine to be dissolved in the molten resin, of not more than 0.3 wt%/MPa with respect to the pressure of the supplied carbon dioxide, is used (Column 12, lines 22-40; It is assumed that 0.1 weight percent of carbon dioxide is dissolved into the molten resin at a pressure of approximately 7 MPa.). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Nishikawa's operating conditions in Colton's molding process in order to achieve the exact amount of initial foaming.

Regarding Claim 3/1 and 3/2/1, Colton shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show a specific amount of carbon dioxide dissolved in the molten resin. Nishikawa shows that it is known to carry out a molding process wherein the preliminarily contained amount of carbon dioxide dissolved in the molten resin is not more than 10 weight percent (Table 2, Examples 8-12, Comparative Examples 4-8). It would have

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been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Nishikawa's specific amount of carbon dioxide in Colton's molten resin in order to achieve the desired amount of initial foaming.

Response to Arguments

Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with regard to molten resins containing foaming agents in general:

U.S. Patent 5,700,407 to Branger

U.S. Patent 6,146,577 to Yamaki et al.

U.S. Patent 6,277,896 to Roth et al.

U.S. Patent 6,337,039 to Yamaki et al.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

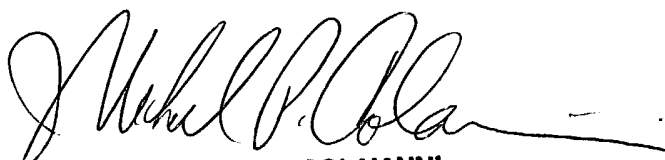
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica A Fontaine whose telephone number is 571-272-1198. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Colaianni can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Maf
June 23, 2004



MICHAEL P. COLAIANNI
SUPERVISORY PATENT EXAMINER